APPENDIX B

GLOBAL CLIMATE CHANGE DATA

LSA ASSOCIATES, INC.

Greenhouse Gas Emissions Worksheet

Project Parameters	
	2020
Vehicles (trips/day)	1,720
Electricity used (MWh/year)	790
(mscf/year)	0.7
Solid Waste (tonnes/year)	

MWh = Megawatt hour

mscf = million standard cubic feet

	Emissions (metric tons per year)				
Emission Source	**CO_2**	**CH_4**	**N_2O**	**CO_2eq**	**Percent of Total**
Vehicles[(1)]	1,964			1,964	88
Electricity Production	165	0.01	0.004	166	7
Natural Gas Combustion	92			92	4
Other Area Sources[(2)]	0	--	--	0	0
Total Annual Emissions	2,221	0.010	0.004	2,223	100

Note: Numbers in table may not appear to add up correctly due to rounding of all numbers to two significant digits.

(1) CO_2 emissions for Vehicles from URBEMIS 2007 outputs, if available.

(2) Includes CO_2 emissions for hearth combustion and landscaping equipment from URBEMIS 2007 outputs.

Global Warming Potential

Gas	Atmospheric Lifetime (years)	Global Warming Potential (100 year time horizon)
Carbon Dioxide	50-200	1
Methane	12 ± 3	25
Nitrous Oxide	120	298
HFC-23	264	14800
HFC-134a	14.6	1430
HFC-152a	1.5	124
PFC: Tetrafluoromethane (CF_4)	50000	7390
PFC: Hexafluoromethane (C_2F_6)	10000	12200
Sulfur Hexafluoride (SF_6)	3200	22800

Enter the project emissions from the URBEMIS modeling

Select the appropriate units: ◉ tons/year ○ lbs/day

Long-Term Regional Operational Emissions

Source	CO_2 Emissions
Natural Gas	101.25
Hearth	
Landscape	0.51
Mobile Sources	2165.33

LSA ASSOCIATES, INC.

Electricity Emissions Worksheet

Commercial Electricity Usage (2003 data):

Commercial Building Type	Electricity Consumption per Building by Building Type	Electricity Consumption per Square Foot by Building Type	Project Info (either # of bldgs or total sf, not both)		Annual Electricity Consumption
	thousand kWH	kWh	# of bldgs	total sf	MWh
All Buildings	226	**14**			0
Mercantile	327	**17.8**			0
Enclosed and Strip Malls	718	**21.1**			0
Retail (Other than Mall)	139	14.3		33000	472
Education	283	**10.7**			0
Food Sales	276	49.4			0
Food Service	213	**31.8**			0
Health Care (All)	564	**20.1**			0
Inpatient Health	6,628	27.5			0
Outpatient Health	168	16.1			0
Lodging	483	**11.9**			0
Office	256	**14.6**		21500	314
Other	510	22.5			0
Public Assembly	179	12.5			0
Public Order and Safety	237	15.3			0
Religious Worship	49	4.9			0
Service	73	**8**			0
Vacant	42	2.4			0
Warehouse and Storage	154	**5.9**			0

Note: Health Care (All) includes both "Inpatient Health" and "Outpatient Health".

Source: Energy Information Administration, www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/detailed_tables_2003.html, Table C14A - Bold valu

Residential Energy Usage (2001 data):

	Mountain	Pacific	Total US.	Project Info # of units	Annual Consumption MWh
Single Family	9,926	7,622	10,656		0
Apartments (2-4 Units)			7,176		0
Apartments (5 or more Units)			6,204		0
Mobile Home			12,469		0
Total Residential (kWh)					0

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-457 A-G of the 2001 Residential Energy Consumption Survey.

	CO_2			CH_4	N_2O
Electricity production emission factors for CA	lb/kWh 0.46	short tons/MWh	tons/MWh	lb/MWh 0.0290	lb/MWh 0.0110
U.S. Average	1.34	0.668	0.606	0.0111	0.0192

Source: California Air Resources Board, 2008. Local Government Operations Protocol. Version 1.0. September 25.

Water Usage Emissions Worksheet

	kWh/MG	
Select the appropriate location:	Project Location in California: (●) Northern ( ) Southern	
Water Supply and Conveyance	150	8,900
Water Treatment	100	100
Water Distribution	1,200	1,200
Wastewater Treatment	2,500	2,500
Totals	3,950	12,700

From California's Water Energy Relationship, CEC 2005

325,900 gallons/acre-feet

Project total usage: 3.7 acre-feet/year

Water Supply and Conveyance	179.85	kWh/year
Water Treatment	119.90	kWh/year
Water Distribution	1,438.80	kWh/year
Wastewater Treatment	2,997.50	kWh/year
Total	4,736.05	kWh/year

Water usage calculator

Number of Residences		Total Gallons Per Day[1]	
Estimated people per residence(1)		Gallons Per Year	0
Gallons/Resident/Day(2)	100	Total Acre-feet Per Year	0.00
Total Gallons Per Day	0		
Gallons Per Year	0		
Acre-feet Per Year	0		

(1) Turner, Alison, 2009. Senior Civil Engineer, City of Mountain View Public Works Department. Written communication with LSA Associates, Inc., July 28.

(2) Based on an estimated water consumption rate of 100 gallons per resident per day

Total Square Footage	54,500
Gallons/Square Foot/Year(3)	22
Gallons Per Year	1,199,000
Acre-feet Per Year	3.7

Vehicle Emissions Worksheet

avg. speed=	35	(mph)	avg trip length=	10	(miles)
2020		**CO_2**	**CH_4**	**N_2O**	**Fleet %**
LDA	CAT	303.519	0.009	0.032	69.6%
LDA	DSL	353.123	0.005	0.001	0.2%
LDT	CAT	384.357	0.014	0.042	27.0%
LDT	DSL	347.168	0.0035	0.002	0.4%
HDT	CAT	503.412	0.0384	0.088	1.2%
HDT	DSL	944.192	0.0074	0.005	1.6%
Composite		338.268	0.011	0.035	100.0%

Notes:

CO_2 and CH_4 from EMFAC2007

N_2O from EPA *Update of Methane and Nitrous Oxide Emission Factors for On-Highway Vehicles*, November 2004, Table 28.

Fleet percentages from URBEMIS2007

	From URBEMIS2007		
	Vehicle Categories	Fleet %	Diesel %
LDA	Light Auto	54	0
	Light Truck < 3750 lbs	12.6	1.6
LDT	Light Truck 3751-5750 lbs	19.9	0
	Med Truck 5751-8500 lbs	6.6	0
HDT	Lite-Heavy Truck 8501-10,000 lbs	0.9	22.2
	Lite-Heavy Truck 10,001-14,000 lbs	0.6	50
	Med-Heavy Truck 14,001-33,000 lbs	1	80
	Heavy-Heavy Truck 33,001-60,000 lbs	0.3	100
LDT	Other Bus	0.1	100
	Urban Bus	0.1	100
LDA	Motorcycle	3.2	0
LDT	School Bus	0.1	100
	Motor Home	0.6	16.7
		100	

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: P:\CMT0901 455 W Evelyn\Background\455 W Evelyn - GHG Emissions.urb924

Project Name: 455 W. Evelyn

Project Location: Bay Area Air District

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010 TOTALS (tons/year unmitigated)	0.21	1.81	1.41	0.00	0.56	0.09	0.66	0.12	0.09	0.20	249.51
2010 TOTALS (tons/year mitigated)	0.21	1.45	1.41	0.00	0.31	0.04	0.36	0.07	0.04	0.11	249.51
Percent Reduction	0.00	20.26	0.00	0.00	44.24	53.46	45.54	43.97	53.55	47.98	0.00
2011 TOTALS (tons/year unmitigated)	0.25	1.70	3.12	0.00	0.01	0.09	0.11	0.00	0.09	0.09	423.44
2011 TOTALS (tons/year mitigated)	0.25	1.35	3.12	0.00	0.01	0.04	0.06	0.00	0.04	0.04	423.44
Percent Reduction	0.00	20.80	0.00	0.00	0.00	54.79	47.74	0.00	55.18	52.19	0.00
2012 TOTALS (tons/year unmitigated)	2.69	0.78	1.49	0.00	0.01	0.04	0.05	0.00	0.04	0.04	214.85
2012 TOTALS (tons/year mitigated)	1.15	0.62	1.49	0.00	0.01	0.02	0.03	0.00	0.02	0.02	214.85
Percent Reduction	57.41	20.99	0.00	0.00	0.00	54.28	46.50	0.00	54.75	51.40	0.00

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AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	3.44	0.37	4.81	0.01	0.72	0.69	489.35

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	1.05	1.10	11.16	0.02	3.46	0.66	1,869.82
TOTALS (tons/year, mitigated)	1.05	1.09	11.09	0.02	3.44	0.65	1,857.98
Percent Reduction	0.00	0.91	0.63	0.00	0.58	1.52	0.63

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	4.49	1.47	15.97	0.03	4.18	1.35	2,359.17

Both Area and Operational Mitigation must be turned on to get a combined mitigated total.

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

2010	0.21	1.81	1.41	0.00	0.56	0.09	0.66	0.12	0.09	0.20	249.51
Demolition 07/01/2010-08/06/2010	0.02	0.18	0.10	0.00	0.09	0.01	0.10	0.02	0.01	0.03	22.09
Fugitive Dust	0.00	0.00	0.00	0.00	0.60	0.00	0.60	0.12	0.00	0.12	0.00
Demo Off Road Diesel	0.02	0.10	0.06	0.00	0.00	0.01	0.01	0.00	0.01	0.01	9.45
Demo On Road Diesel	0.00	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.26
Demo Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.38
Fine Grading 08/06/2010-10/18/2010	0.11	1.09	0.49	0.00	0.48	0.05	0.52	0.10	0.04	0.14	123.44
Fine Grading Dust	0.00	0.00	0.00	0.00	0.47	0.00	0.47	0.10	0.00	0.10	0.00
Fine Grading Off Road Diesel	0.08	0.65	0.32	0.00	0.00	0.03	0.03	0.00	0.03	0.03	58.43
Fine Grading On Road Diesel	0.03	0.44	0.14	0.00	0.00	0.02	0.02	0.00	0.01	0.02	62.36
Fine Grading Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.65
Asphalt 10/18/2010-11/18/2010	0.03	0.15	0.11	0.00	0.00	0.01	0.01	0.00	0.01	0.01	14.43
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.02	0.14	0.08	0.00	0.00	0.01	0.01	0.00	0.01	0.01	11.75
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54
Paving Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.14
Building 10/18/2010-06/30/2012	0.06	0.39	0.71	0.00	0.00	0.02	0.02	0.00	0.02	0.02	89.55
Building Off Road Diesel	0.03	0.25	0.13	0.00	0.00	0.02	0.02	0.00	0.01	0.01	24.57
Building Vendor Trips	0.01	0.11	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.80
Building Worker Trips	0.02	0.03	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.18

2011	0.25	1.70	3.12	0.00	0.01	0.09	0.11	0.00	0.09	0.09	423.44
Building 10/18/2010-06/30/2012	0.25	1.70	3.12	0.00	0.01	0.09	0.11	0.00	0.09	0.09	423.44
Building Off Road Diesel	0.14	1.11	0.61	0.00	0.00	0.07	0.07	0.00	0.06	0.06	116.14
Building Vendor Trips	0.04	0.48	0.37	0.00	0.00	0.02	0.02	0.00	0.02	0.02	103.04
Building Worker Trips	0.07	0.12	2.14	0.00	0.01	0.01	0.02	0.00	0.00	0.01	204.26
2012	2.69	0.78	1.49	0.00	0.01	0.04	0.05	0.00	0.04	0.04	214.85
Building 10/18/2010-06/30/2012	0.12	0.78	1.46	0.00	0.01	0.04	0.05	0.00	0.04	0.04	211.78
Building Off Road Diesel	0.07	0.51	0.30	0.00	0.00	0.03	0.03	0.00	0.03	0.03	58.07
Building Vendor Trips	0.02	0.21	0.17	0.00	0.00	0.01	0.01	0.00	0.01	0.01	51.52
Building Worker Trips	0.03	0.05	0.99	0.00	0.01	0.00	0.01	0.00	0.00	0.00	102.19
Coating 04/29/2012-06/30/2012	2.57	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.06
Architectural Coating	2.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.06

Phase Assumptions

Phase: Demolition 7/1/2010 - 8/6/2010 - Type Your Description Here

Building Volume Total (cubic feet): 532700

Building Volume Daily (cubic feet): 14915.6

On Road Truck Travel (VMT): 207.16

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 8/6/2010 - 10/18/2010 - Default Fine Site Grading Description

Total Acres Disturbed: 3.64

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Maximum Daily Acreage Disturbed: 0.91

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 595.77

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 10/18/2010 - 11/18/2010 - Default Paving Description

Acres to be Paved: 0.91

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 10/18/2010 - 6/30/2012 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Architectural Coating 4/29/2012 - 6/30/2012 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

2010	0.21	1.45	1.41	0.00	0.31	0.04	0.36	0.07	0.04	0.11	249.51
Demolition 07/01/2010-08/06/2010	0.02	0.15	0.10	0.00	0.09	0.01	0.09	0.02	0.00	0.02	22.09
Fugitive Dust	0.00	0.00	0.00	0.00	0.60	0.00	0.60	0.12	0.00	0.12	0.00
Demo Off Road Diesel	0.02	0.07	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.45
Demo On Road Diesel	0.00	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.26
Demo Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.38
Fine Grading 08/06/2010-10/18/2010	0.11	0.88	0.49	0.00	0.23	0.02	0.25	0.05	0.02	0.07	123.44
Fine Grading Dust	0.00	0.00	0.00	0.00	0.22	0.00	0.22	0.05	0.00	0.05	0.00
Fine Grading Off Road Diesel	0.08	0.44	0.32	0.00	0.00	0.01	0.01	0.00	0.01	0.01	58.43
Fine Grading On Road Diesel	0.03	0.44	0.14	0.00	0.00	0.02	0.02	0.00	0.01	0.02	62.36
Fine Grading Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.65
Asphalt 10/18/2010-11/18/2010	0.03	0.10	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.43
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.02	0.10	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.75
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54
Paving Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.14
Building 10/18/2010-06/30/2012	0.06	0.31	0.71	0.00	0.00	0.01	0.01	0.00	0.01	0.01	89.55
Building Off Road Diesel	0.03	0.17	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24.57
Building Vendor Trips	0.01	0.11	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.80
Building Worker Trips	0.02	0.03	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.18

2011	0.25	1.35	3.12	0.00	0.01	0.04	0.06	0.00	0.04	0.04	423.44
Building 10/18/2010-06/30/2012	0.25	1.35	3.12	0.00	0.01	0.04	0.06	0.00	0.04	0.04	423.44
Building Off Road Diesel	0.14	0.75	0.61	0.00	0.00	0.02	0.02	0.00	0.02	0.02	116.14
Building Vendor Trips	0.04	0.48	0.37	0.00	0.00	0.02	0.02	0.00	0.02	0.02	103.04
Building Worker Trips	0.07	0.12	2.14	0.00	0.01	0.01	0.02	0.00	0.00	0.01	204.26
2012	1.15	0.62	1.49	0.00	0.01	0.02	0.03	0.00	0.02	0.02	214.85
Building 10/18/2010-06/30/2012	0.12	0.61	1.46	0.00	0.01	0.02	0.03	0.00	0.02	0.02	211.78
Building Off Road Diesel	0.07	0.35	0.30	0.00	0.00	0.01	0.01	0.00	0.01	0.01	58.07
Building Vendor Trips	0.02	0.21	0.17	0.00	0.00	0.01	0.01	0.00	0.01	0.01	51.52
Building Worker Trips	0.03	0.05	0.99	0.00	0.01	0.00	0.01	0.00	0.00	0.00	102.19
Coating 04/29/2012-06/30/2012	1.03	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.06
Architectural Coating	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.06

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Demolition 7/1/2010 - 8/6/2010 - Type Your Description Here

For Concrete/Industrial Saws, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Concrete/Industrial Saws, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

For Rubber Tired Dozers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Dozers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

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For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

The following mitigation measures apply to Phase: Fine Grading 8/6/2010 - 10/18/2010 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Graders, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

For Rubber Tired Dozers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Dozers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

For Water Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Water Trucks, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

The following mitigation measures apply to Phase: Paving 10/18/2010 - 11/18/2010 - Default Paving Description

For Cement and Mortar Mixers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Cement and Mortar Mixers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

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For Pavers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

For Rollers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rollers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

The following mitigation measures apply to Phase: Building Construction 10/18/2010 - 6/30/2012 - Default Building Construction Description

For Cranes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Cranes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

For Forklifts, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Forklifts, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

The following mitigation measures apply to Phase: Architectural Coating 4/29/2012 - 6/30/2012 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 60%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 60%

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Apartments low rise	1.05	1.10	11.16	0.02	3.46	0.66	1,869.82
TOTALS (tons/year, unmitigated)	1.05	1.10	11.16	0.02	3.46	0.66	1,869.82

Operational Mitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Mitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Apartments low rise	1.05	1.09	11.09	0.02	3.44	0.65	1,857.98
TOTALS (tons/year, mitigated)	1.05	1.09	11.09	0.02	3.44	0.65	1,857.98

Operational Mitigation Options Selected

Residential Mitigation Measures

Residential Local-Serving Retail Mitigation

Percent Reduction in Trips is 0% (calculated as a % of 9.57 trips/day)))

Note that the above percent is applied to a baseline of 9.57 and that product is

subtracted from the Unmitigated Trips

Inputs Selected:

The Presence of Local-Serving Retail checkbox was NOT selected.

Residential Affordable Housing Mitigation

Operational Mitigation Options Selected

Residential Mitigation Measures

Percent Reduction in Trips is 0.4% (calculated as a % of 9.57 trips/day)

Note that the above percent is applied to a baseline of 9.57 and that product is

subtracted from the Unmitigated Trips

Inputs Selected:

The Percent of Housing Units that are Deed-Restricted Below Market Rate Housing is 10%

Nonresidential Mitigation Measures

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Apartments low rise	3.64	6.05	dwelling units	214.00	1,294.70	11,069.30
					1,294.70	11,069.30

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.0	0.0	100.0	0.0
Light Truck < 3750 lbs	12.6	0.0	98.4	1.6

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Truck 3751-5750 lbs	19.9	0.0	100.0	0.0
Med Truck 5751-8500 lbs	6.6	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.9	0.0	77.8	22.2
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	0.3	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	3.2	40.6	59.4	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.6	0.0	83.3	16.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

Operational Changes to Defaults

LSA ASSOCIATES, INC.

Greenhouse Gas Emissions Worksheet

Project Parameters	
	2020
Vehicles (trips/day)	1,295
Electricity used (MWh/year)	1,400
(mscf/year)	
Solid Waste (tonnes/year)	

MWh = Megawatt hour

mscf = million standard cubic feet

	Emissions (metric tons per year)				
Emission Source	**CO_2**	**CH_4**	**N_2O**	**CO_2eq**	**Percent of Total**
Vehicles[(1)]	1,685			1,685	70
Electricity Production	292	0.018	0.007	295	12
Natural Gas Combustion	341			341	14
Other Area Sources[(2)]	103	--	--	103	4
Total Annual Emissions	2,421	0.018	0.007	2,424	100

Note: Numbers in table may not appear to add up correctly due to rounding of all numbers to two significant digits.

(1) CO_2 emissions for Vehicles from URBEMIS 2007 outputs, if available.

(2) Includes CO_2 emissions for hearth combustion and landscaping equipment from URBEMIS 2007 outputs.

Global Warming Potential

Gas	Atmospheric Lifetime (years)	Global Warming Potential (100 year time horizon)
Carbon Dioxide	50-200	1
Methane	12 ± 3	25
Nitrous Oxide	120	298
HFC-23	264	14800
HFC-134a	14.6	1430
HFC-152a	1.5	124
PFC: Tetrafluoromethane (CF_4)	50000	7390
PFC: Hexafluoromethane (C_2F_6)	10000	12200
Sulfur Hexafluoride (SF_6)	3200	22800

Enter the project emissions from the URBEMIS modeling

Select the appropriate units: (●) tons/year ( ) lbs/day

Long-Term Regional Operational Emissions

Source	CO_2 Emissions
Natural Gas	376.01
Hearth	113.09
Landscape	0.25
Mobile Sources	1857.98

Electricity Emissions Worksheet

Commercial Electricity Usage (2003 data):

Commercial Building Type	Electricity Consumption per Building by Building Type	Electricity Consumption per Square Foot by Building Type	Project Info (either # of bldgs or total sf, not both)		Annual Electricity Consumption
	thousand kWH	kWh	# of bldgs	total sf	MWh
All Buildings	226	**14**			0
Mercantile	327	**17.8**			0
Enclosed and Strip Malls	718	**21.1**			0
Retail (Other than Mall)	139	14.3			0
Education	283	**10.7**			0
Food Sales	276	49.4			0
Food Service	213	**31.8**			0
Health Care (All)	564	**20.1**			0
Inpatient Health	6,628	27.5			0
Outpatient Health	168	16.1			0
Lodging	483	**11.9**			0
Office	256	**14.6**			0
Other	510	22.5			0
Public Assembly	179	12.5			0
Public Order and Safety	237	15.3			0
Religious Worship	49	4.9			0
Service	73	**8**			0
Vacant	42	2.4			0
Warehouse and Storage	154	**5.9**			0

Note: Health Care (All) includes both "Inpatient Health" and "Outpatient Health".

Source: Energy Information Administration, www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/detailed_tables_2003.html, Table C14A - Bold valu

Residential Energy Usage (2001 data):

	Mountain	Pacific	Total US.	Project Info # of units	Annual Consumption MWh
Single Family	9,926	7,622	10,656		0
Apartments (2-4 Units)			7,176		0
Apartments (5 or more Units)			6,204	214	1,328
Mobile Home			12,469		0
Total Residential (kWh)					1,328

Source: Energy Information Administration, Office of Energy Markets and End Use, Forms EIA-457 A-G of the 2001 Residential Energy Consumption Survey.

	CO_2			CH_4	N_2O
Electricity production emission factors for CA	lb/kWh 0.46	short tons/MWh	tons/MWh	lb/MWh 0.0290	lb/MWh 0.0110
U.S. Average	1.34	0.668	0.606	0.0111	0.0192

Source: California Air Resources Board, 2008. Local Government Operations Protocol. Version 1.0. September 25.

Water Usage Emissions Worksheet

	kWh/MG	
Select the appropriate location:	Project Location in California: (●) Northern ( ) Southern	
Water Supply and Conveyance	150	8,900
Water Treatment	100	100
Water Distribution	1,200	1,200
Wastewater Treatment	2,500	2,500
Totals	3,950	12,700

From California's Water Energy Relationship, CEC 2005

325,900 gallons/acre-feet

Project total usage: 51.5 acre-feet/year

Water Supply and Conveyance	2,519.05	kWh/year
Water Treatment	1,679.37	kWh/year
Water Distribution	20,152.38	kWh/year
Wastewater Treatment	41,984.13	kWh/year
Total	66,334.92	kWh/year

Water usage calculator

Number of Residences	214	Total Gallons Per Day(1)	
Estimated people per residence(1)	2.15	Gallons Per Year	0
Gallons/Resident/Day(2)	100	Total Acre-feet Per Year	0.00
Total Gallons Per Day	46,010		
Gallons Per Year	16,793,650		
Acre-feet Per Year	52		

(1) Turner, Alison, 2009. Senior Civil Engineer, City of Mountain View Public Works Department. Written communication with LSA Associates, Inc., July 28.

(2) Based on an estimated water consumption rate of 100 gallons per resident per day

Total Square Footage	
Gallons/Square Foot/Year(3)	
Gallons Per Year	0
Acre-feet Per Year	0.0

Vehicle Emissions Worksheet

avg. speed=	35	(mph)	avg trip length=	10	(miles)
2020		**CO_2**	**CH_4**	**N_2O**	**Fleet %**
LDA	CAT	303.519	0.009	0.032	69.6%
LDA	DSL	353.123	0.005	0.001	0.2%
LDT	CAT	384.357	0.014	0.042	27.0%
LDT	DSL	347.168	0.0035	0.002	0.4%
HDT	CAT	503.412	0.0384	0.088	1.2%
HDT	DSL	944.192	0.0074	0.005	1.6%
Composite		338.268	0.011	0.035	100.0%

Notes:

CO_2 and CH_4 from EMFAC2007

N_2O from EPA *Update of Methane and Nitrous Oxide Emission Factors for On-Highway Vehicles* , November 2004, Table 28.

Fleet percentages from URBEMIS2007

	From URBEMIS2007		
	Vehicle Categories	Fleet %	Diesel %
LDA	Light Auto	54	0
	Light Truck < 3750 lbs	12.6	1.6
LDT	Light Truck 3751-5750 lbs	19.9	0
	Med Truck 5751-8500 lbs	6.6	0
HDT	Lite-Heavy Truck 8501-10,000 lbs	0.9	22.2
	Lite-Heavy Truck 10,001-14,000 lbs	0.6	50
	Med-Heavy Truck 14,001-33,000 lbs	1	80
	Heavy-Heavy Truck 33,001-60,000 lbs	0.3	100
LDT	Other Bus	0.1	100
	Urban Bus	0.1	100
LDA	Motorcycle	3.2	0
LDT	School Bus	0.1	100
	Motor Home	0.6	16.7
		100	